

Application No. 10/030,773  
Amendment dated September 5, 2003  
Reply to Office Action dated June 5, 2003

### **REMARKS**

Claims 1-13 and 26-40 are pending in the current application. Claims 1, 3, 5, 6, 8, 10 and 11 have been amended hereby and new claims 26-40 have been added hereby. Claims 14-25 have been withdrawn from consideration.

The Examiner has rejected claims 3, 5 and 6 under 35 U.S.C. § 112, second paragraph, as being indefinite. The Examiner has also objected to claims 1, 3, 8, 10 and 11 as containing informalities. Claims 1, 3, 5, 6, 8, 10 and 11 have been amended hereby to address the Examiner's rejection and objections and, as amended, claims 1, 3, 5, 6, 8, 10 and 11 point out with particularity and distinctly claim the subject matter regarded as the invention. The withdrawal of the rejection of claims 3, 5 and 6 under 35 U.S.C. § 112, second paragraph, and of the objection to claims 1, 3, 8, 10 and 11 is, therefore, respectfully requested. It is noted that the amendments to the claims that have been made hereby are solely for clarifying the claimed subject matter and are not for the purpose of imposing additional substantive limitations on the claimed subject matter. It is further noted that new claims 26-39 are directed towards the subject matter that was previously claimed using alternative language in claims 3, 5, 8, 10 and 11.

The Examiner has rejected claims 1-13 under 35 U.S.C. § 103(a) as being unpatentable over Verlinden et al. (U.S. Pat. No. 6,287,674) in view of Stein et al. (U.S. Pat. No. 6,322,860) with Publication WO 99/21707 used as evidentiary support.

Claim 1 of the present application calls for a glass-plastic composite film wherein the composite film comprises a glass film having opposed side surfaces and a thickness between 10  $\mu\text{m}$  and 500  $\mu\text{m}$ , and a polymer layer applied on at least one of the side surfaces of the glass film, the polymer layer having a thickness between 1  $\mu\text{m}$  and 200  $\mu\text{m}$  with the polymer layer being applied directly to the at least one of the side surfaces, and wherein at least one side of the composite film has a waviness of less than 100 nm and a roughness  $R_T < 30$  nm. The remaining pending claims 2-13 and 26-40 depend from claim 1.

The Examiner cites Verlinden '674 for disclosing, *inter alia*, a laminate comprising a thin glass substrate with a support layer that can be an organic resin and has a thickness of less than 250  $\mu\text{m}$  and can be very thin on the order of 10-50  $\mu\text{m}$  and wherein the glass

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substrate may have a thickness ranging from 10-450  $\mu\text{m}$ . The Examiner acknowledges that Verlinden '674 does not specifically disclose the surface waviness or roughness, transmission, or the temperature resistance of the film.

The Examiner cites Stein '860 for disclosing, *inter alia*, a plastic substrate with polymer coatings wherein the sheet waviness of the polymer coating should be less than 0.05 microns, having roughness, i.e.,  $R_q$ , the root mean square average deviation of the filtered profile, of less than 5 microns and an optical retardation that is most preferably less than 5 nm.

The Examiner states that "[a]lthough Stein et al teaches away from using a glass substrate, it is known in the art to use a glass substrate for a display." June 5, 2003, Office Action, p. 5. The Examiner then argues that Verlinden '674 and Stein '860 are combinable to render the subject matter of claim 1 unpatentable thereover, citing WO '707 for the proposition that a laminate of glass and plastic are used in flat panel displays.

Turning first to Verlinden '674 and WO '707, it is noted that these documents are related and have a common specification. Claim 1 of the present application calls for a glass-plastic composite film that includes, *inter alia*, a glass film with a polymer layer being applied directly to at one of the side surfaces of the glass film and wherein the glass film has a thickness between 10  $\mu\text{m}$  and 500  $\mu\text{m}$ , the polymer layer has a thickness between 1  $\mu\text{m}$  and 200  $\mu\text{m}$ , and at least one side of the composite film has a waviness of less than 100 nm and a roughness of  $RT < 30 \text{ nm}$ .

As described in the present application, "[d]irectly applying a polymer to the glass surface without an adhesive agent, and in the liquid phase, achieves that the surface of the polymer layer reflects the surface of the glass film, so to speak, and that it has its excellent surface quality." See paragraph 0047. The present application also describes several advantages of the resulting composite film:

The glass-plastic composite film of the invention in the case of manufacturing displays is suitable because of its high surface quality both for further processing into a polarizer film and into a carrier plate for electrodes and for the use as an outermost protective sheet. Because of the plastic layer the film is resistant to breaking and lighter at the same time, because of the glass film layer it is scratch-proof, hard, mechanically stable and chemically inert.

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Depending on whether the glass side or the plastic side is processed further either the plastic side serves as break protection or the glass side serves as scratch protection. Because of the low double refraction the glass-plastic composite film of the invention is suitable especially for use in optoelectronic components and devices. The high surface quality of the composite film is of particular importance for manufacturing liquid crystal cells and luminous displays on the basis of light-emitting layers because rough surfaces can lead to defects in the display, as rough surfaces can easily lead to an uneven alignment of the liquid crystals in the applied orientation layers. Waviness leads to fluctuations in the layer thickness of the active layer (such as liquid crystals) and thus to an inhomogeneous display.

Application, paragraph 0032. In contrast, the laminate structure disclosed by Verlinden '674 and WO '707 includes a thin borosilicate glass substrate and a support wherein the support is specifically distinguished from a polymer coating. Each of these documents explains:

The laminate of the present invention comprises a thin borosilicate glass substrate and a support. The term "laminate" as used herein shall be understood as "a material consisting of a plurality of bonded layers". The glass layer and the support layer may be bonded to each other by applying an intermediate adhesive layer between said bonded layers but also vacuum lamination can be used as will be discussed below. The term "support" is used in the meaning of a "self-supporting layer" so as to distinguish it from layers which may be coated on a support but which are not self-supporting.

See Verlinden '674, col. 3, lines 3-13; WO '707, p. 4, lines 14-23. As mentioned above, the Examiner acknowledges that Verlinden '674 does not specifically disclose the surface waviness or roughness, transmission, or the temperature resistance of the film of claim 1 of the present application. The Examiner then attempts to rectify this deficiency by citing Stein '860. Stein '860, however, discloses the use of a plastic substrate that may optionally include layers coated on the substrate. See, e.g., col. 2, lines 26-36. Stein '860 also specifically addresses the use of glass substrates stating:

Substrates for display devices have typically been made of optical quality glass or quartz because these materials meet requirements for optical clarity and flatness, and because these materials have good gas and moisture barrier properties and good thermal and chemical resistance. On the other hand, glass and quartz are brittle and subject to breakage, and they are therefore limited in usefulness in thin sheets or films less than 1 mm in thickness.

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Col. 1, lines 39-46. Stein '860 goes on to state that "[t]here remains a need for a plastic substrate material which has good optical quality, flatness, solvent resistance, thermal resistance, and gas barrier properties." Col. 3, lines 20-23. The Examiner acknowledges that Stein '860 teaches away from the use of a glass film but then proceeds to combine Stein '860 with Verlinden '674 in direct conflict with the teachings of Stein '860. The Examiner cites WO '707 as support for this combination. As discussed above, however, both WO '707 and Verlinden '674 teach the use of a self-supporting plastic layer with a glass film and distinguish such a self-supporting layer from a coating applied to a substrate as disclosed in Stein '860. Thus, not only does Stein '860 teach away from its combination with Verlinden '674 and WO '707, but each of these references also teach away from their combination with Stein '860.

In addressing the combination of references under section 103, the Federal Circuit has held that "[t]he PTO has the burden under section 103 to establish a *prima facie* case of obviousness. It can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references." *In re Fine*, 837 F.2d 1071, 1074 (Fed. Cir. 1988) citations omitted. Moreover, "[a] *prima facie* case of obviousness can be rebutted if the applicant . . . can show 'that the art in any material respect taught away' from the claimed invention." *In re Haruna*, 249 F.3d 1327, 1335 (Fed. Cir. 2001) quoting *In re Geisler*, 116 F.3d 1465, 1469 (Fed. Cir. 1997) and *In re Malagari*, 499 F.2d 1297, 1303 (CCPA 1974). See also *Winner Int'l Royalty Corp. v. Wang*, 202 F.3d 1340, 1350 (Fed. Cir.) cert. denied 530 U.S. 1238 (2000) (" . . . [W]e hold that the district court did not clearly err in finding that Johnson taught away from Moore, and therefore was not shown to be combinable with Moore. ").

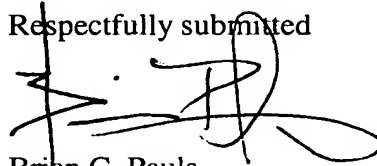
Thus, it is clear that Verlinden '764 and Stein '860, each of which teach away from their combination with the other reference, may not be combined to generate an obviousness argument under 35 U.S.C. § 103. The allowance of claims 1-13 and 25-40 is, therefore, respectfully requested.

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In the event Applicant has overlooked the need for any extension of time or payment of fee, Applicant hereby petitions therefor and authorizes that any charges be made to Deposit Account No. 02-0385, Baker & Daniels. Should the Examiner have any further questions regarding any of the foregoing, the Examiner is respectfully invited to telephone the undersigned at (260) 424-8000.

Applicant respectfully requests that a timely Notice of Allowance be issued in this application.

Respectfully submitted



Brian C. Pauls  
Registration No. 40,122

Attorney for Applicant

BCP:sm

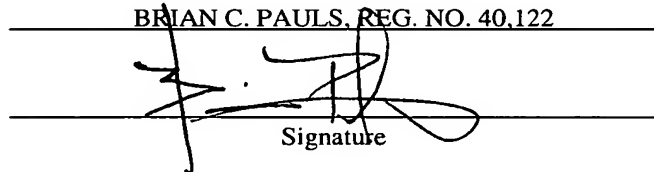
BAKER & DANIELS  
111 East Wayne Street, Suite 800  
Fort Wayne, IN 46802  
Telephone: 260-424-8000  
Facsimile: 260-460-1700

Enclosures: Postcard

CERTIFICATION OF MAILING

I HEREBY CERTIFY THAT THIS correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on: September 5, 2003.

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BRIAN C. PAULS, REG. NO. 40,122

  
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Signature

\_\_\_\_\_  
September 5, 2003  
Date